



US006097733A

United States Patent [19][11] **Patent Number:** **6,097,733****Basu et al.**[45] **Date of Patent:** **Aug. 1, 2000**

[54] **SYSTEM AND ASSOCIATED METHOD OF OPERATION FOR MANAGING BANDWIDTH IN A WIRELESS COMMUNICATION SYSTEM SUPPORTING MULTIMEDIA COMMUNICATIONS**

[75] Inventors: **Kalyan K. Basu, Plano; Carlos A. Molina, Dallas, both of Tex.**

[73] Assignee: **Nortel Networks Corporation, Ottawa, Canada**

[21] Appl. No.: **08/876,192**

[22] Filed: **Jun. 13, 1997**

[51] Int. Cl.⁷ **H04Q 7/34**

[52] U.S. Cl. **370/468; 370/329; 370/338; 370/341; 370/521; 455/452; 455/561; 455/560**

[58] Field of Search **370/328, 329, 370/341, 465, 468, 521, 335, 336, 337, 338, 342, 345, 347, 441, 442, 437, 474, 479, 477; 455/422, 450, 452, 507, 509, 517, 550, 560, 561**

[56] **References Cited**

U.S. PATENT DOCUMENTS

5,590,127	12/1996	Bales et al.	370/468
5,613,198	3/1997	Ahmadi et al.	370/648
5,625,877	4/1997	Dunn et al.	370/329
5,751,712	5/1998	Farwell et al.	370/468
5,818,830	10/1998	Daane et al.	370/347
5,914,945	6/1999	Abu-Amara et al.	370/329

Primary Examiner—Ricky Ngo

Attorney, Agent, or Firm—Bruce Garlick

[57] **ABSTRACT**

A communication system provides wireless voice and multimedia communications and includes a base station, a plurality of wireless mobile units and a bandwidth allocator. The base station provides wireless coverage throughout a service area and has a bandwidth for providing the wireless coverage. The plurality of wireless mobile units operate within the service area and communicate with the base station to transmit and receive both voice communications and multimedia communications. The bandwidth allocator selectively allocates the bandwidth in response to wireless multimedia communication requirements to achieve a minimum transmission rate for multimedia communications. The communication system may include a plurality of channels, each having a channel bandwidth with the bandwidth allocator selectively allocating the channels in response to the multimedia communication requirements to achieve the minimum transmission rate. The base station may also include a plurality of data modems, each of the data modems providing a respective portion of the bandwidth, the bandwidth allocator selectively allocating the plurality of data modems of the base station to achieve the minimum transmission rate. Further, at least one of the wireless mobile units may include a plurality of data modems with the bandwidth allocator selectively allocating the data modems of the wireless mobile unit to achieve the minimum transmission rate. In such case, each of the of the plurality of modems may be assigned a channel. In some constructions, the bandwidth allocator may allocate time divisions of the plurality of channels bandwidth while in other constructions may allocate allocating code divisions of the bandwidth to achieve the minimum transmission rate.

36 Claims, 10 Drawing Sheets

